

1996 ASC Abstract

Improved Fabrication of High-Temperature Superconducting-Normal-Superconducting (SNS) Josephson Junctions for Device Applications * K.A. DELIN, A.W. KLEINSASSER, J.B. BARNER, and R.P. VASQUEZ, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109-8099, USA - The development of a practical high-temperature superconducting (HTS) Josephson technology requires devices with large critical currents, I_c , and normal state resistances, R_n , on appropriate substrate materials. We will present recent results on several process improvements made with the intention of using HTS SNS devices for mixers and digital circuits. We will describe a new means of growing high-quality $\text{YBa}_2\text{Cu}_3\text{O}_7$ films on silicon-on-sapphire (SOS) substrates without the use of multiple seed layers. This process is used to obtain quality SNS devices on SOS suitable for mixing at frequencies exceeding 1 THz. In addition, we will discuss SNS device experiments involving N interlayers that are more resistive than **Co-substituted** $\text{YBa}_2\text{Cu}_3\text{O}_7$, presently the most commonly used interlayer. These more resistive SNS devices are designed to have a higher R_n while maintaining a similar I_c to those junctions currently available.

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I, the registrant for this paper, am willing to review papers in the following subcategories; *HTS Junctions, 3-Terminal Devices*

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